LISTING OF CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A protective layer for a body, ~~which comprises~~ comprising:

at least one hard-material layer formed from a first material selected from the group consisting of metal oxide, ~~and/or~~ metal nitride, ~~and/or~~ metal carbide, ~~and/or~~ metal oxynitride, ~~and/or~~ metal carbonitride, ~~and/or~~ metal oxycarbonitride, and any combinations thereof, wherein the at least one hard-material layer ~~comprising metal oxide and/or metal nitride and/or metal carbide and/or metal oxynitride and/or metal carbonitride and/or metal oxycarbonitride~~ is a functional layer; and

~~which is interrupted by~~ at least one interlayer interrupting the morphology of the functional layer, wherein the at least one interlayer is formed from a second material selected from the group consisting of metal oxide, ~~and/or~~ metal nitride, ~~and/or~~ metal carbide, ~~and/or~~ metal oxynitride, ~~and/or~~ metal carbonitride, ~~and/or~~ metal oxycarbonitride, and any combinations thereof, wherein the second material ~~that~~ is different than the ~~functional layer~~ first material, and wherein the at least one interlayer is a layer that is very thin compared to the functional layer~~, the interlayer interrupting the morphology of the functional layer~~.

2. (Currently amended) The protective layer as claimed in claim 1, wherein the functional layer is at least 50%~~, preferably more than 80%,~~ crystalline.

3. (Currently amended) The protective layer as claimed in claim 1~~ or 2~~, wherein ~~the layer thickness of~~ the functional layer has a first thickness ~~is~~ in ~~the~~ a range from 100 to 20,000 nm~~, preferably between 500 and 10 000 nm and particularly preferably between 1500 and 5000 nm~~.

4. (Currently amended) The protective layer as claimed in claim 3, wherein ~~the thickness of~~ the at least one interlayer has a second thickness [[is ≤]] of less than or equal to 10 nm~~, preferably from 1 to 5 nm~~.

5. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 4~~, wherein the functional layer is interrupted by a plurality of interlayers at intervals of 30 to 500 nm~~, preferably at intervals of 50 to 250 nm~~.

6. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 5~~, wherein the functional layer is interrupted by a plurality of interlayers at regular intervals.

7. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 6~~, wherein the functional layer ~~which~~ is interrupted by a plurality of interlayers, and wherein the functional layer includes columns which on average have a lateral dimension of less than 1 μm~~ and preferably of less than 200 nm~~.

8. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 7~~, wherein the functional layer has a surface roughness ~~has~~ having an R_a value of [[<]] less than 50 nm~~, preferably an R_a value of < 30 nm and particularly preferably an R_a value of < 20 nm~~.

9. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 8~~, wherein the functional layer comprises silicon nitride.

10. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 8~~, wherein the functional layer comprises a metal oxide.

11. (Original) The protective layer as claimed in claim 10, wherein the functional layer comprises zirconium oxide in a temperature stable crystal phase or zirconium oxide with an additional component hafnium oxide in a temperature-stable crystal phase.

12. (Currently amended) The protective layer as claimed in claim 11, wherein the zirconium oxide is admixed to an oxide selected from the group consisting of yttrium oxide, calcium oxide, magnesium oxide, tantalum oxide, niobium oxide, scandium oxide, titanium oxide, ~~or~~ the lanthanide oxide group, ~~such as for example~~ lanthanum oxide, and ~~or~~ cerium oxide, ~~is admixed to the zirconium oxide~~ in order to stabilize the temperature-stable crystal phase.

13. (Currently amended) The protective layer as claimed in claim 12, wherein the ~~hard-material layer comprising~~ zirconium oxide ~~contains~~ comprises, as a stabilizing component, from 0.5 to 50 mol% of Y_2O_3~~, preferably from 1 to 10 mol% of Y_2O_3, and particularly preferably from 1.0 to 7.5 mol% of Y_2O_3~~.

14. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 11 ~~to 13~~, wherein the at least one interlayer comprises zirconium nitride.

15. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 14~~, wherein the at least one interlayer comprises silicon oxide.

16. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 14~~, wherein the at least one interlayer comprises titanium-aluminum oxide.

17. (Currently amended) The protective layer as claimed in claim 16, wherein ~~the refractive index n of~~ the at least one interlayer has a refractive index that is ~~can be set~~ in a range ~~from~~ between greater than or equal to 1.55 [[≤ n ≤]] and less than or equal to 2.50 ~~by means of the ratio of aluminum to titanium~~.

18. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 2 ~~to 18~~, wherein the at least one interlayer is at least 50%~~, preferably more than 80%,~~ amorphous.

19. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s~~ 1 ~~to 18~~, ~~which also has a~~ further comprising ~~hard-~~

20. (Currently amended) The protective layer as claimed in claim [[17]] 19, wherein the ~~further~~ transparent hard-material layer comprises at least 50% silicon oxide.

21. (Currently amended) A protective layer for a body, ~~which comprises~~ comprising:

at least one hard-material layer formed from a material selected from the group consisting of metal oxide, ~~and/or~~ metal nitride, ~~and/or~~ metal carbide, ~~and/or~~ metal oxynitride, ~~and/or~~ metal carbonitride, ~~and/or~~ metal oxycarbonitride, and any combinations thereof, wherein the at least one hard-material layer ~~comprising metal oxide and/or metal nitride and/or metal carbide and/or metal oxynitride and/or metal carbonitride and/or metal oxycarbonitride~~ is a functional layer ~~which~~ that grows in the form of predominantly crystalline, columnar structures; and

~~which is interrupted by very thin~~ a plurality of interlayers interrupting the functional layer, ~~preferably with~~ the plurality of interlayers having a thickness of less than 10 nm[[,]] and being dispersed in the functional layer at intervals of 30 to 500 nm[[,]] so that the crystalline, columnar structures of the functional layer ~~has~~ are laterally tightly and cohesive, ~~crystalline columns which~~ grow perpendicular to ~~the~~ a surface of the body, and ~~which, in columnar growth, have little tendency to widen out, and preferably~~ have a mean lateral dimension of less than 1 μm ~~and particularly preferably of less than 200 nm~~.

22. (Currently amended) The protective layer as claimed in ~~one of~~ claim~~s 1 to~~ 21, ~~which is distinguished by its~~ wherein the protective layer finds use for coating bodies made from glass, glass-ceramic or other non-metallic, crystalline materials.

23. (Currently amended) A cooking hob, comprising:

~~which has~~ a coating ~~which includes a protective layer as claimed in one of claims 1 to 22~~ having at least one hard-material layer formed from a first material selected from the group consisting of metal oxide, metal nitride, metal carbide, metal oxynitride, metal carbonitride, metal oxycarbonitride, and any combinations thereof, wherein the at least one hard-material layer is a functional layer, and

at least one interlayer interrupting the morphology of the functional layer, wherein the at least one interlayer is formed from a second material selected from the group consisting of metal oxide, metal nitride, metal carbide, metal oxynitride, metal carbonitride, metal oxycarbonitride, and any combinations thereof, wherein the second material is different than the first material, and wherein the at least one interlayer is a layer that is very thin compared to the functional layer.

24. (Currently amended) A cooking device, comprising:

~~which has~~ a coating ~~which includes a protective layer as claimed in one of claims 1 to 22~~ having at least one hard-material layer formed from a first material selected from the group consisting of metal oxide, metal nitride, metal carbide, metal oxynitride, metal carbonitride, metal oxycarbonitride, and any combinations thereof, wherein the at least one hard-material layer is a functional layer, and

at least one interlayer interrupting the morphology of the functional layer, wherein the at least one interlayer is formed from a second material selected from the group consisting of metal oxide, metal nitride, metal carbide, metal oxynitride, metal carbonitride, metal oxycarbonitride, and any combinations thereof, wherein the second material is different than the first material, and wherein the at least one interlayer is a layer that is very thin compared to the functional layer.

26. (Currently amended) A process for coating a body made from glass, glass-ceramic or another nonmetallic, crystalline material~~, in particular for coating a glass-ceramic hotplate,~~ with a protective layer, ~~in particular with a protective layer as claimed in claims 1 to 20,~~ comprising the steps of:

~~a)~~ providing the body and ~~the~~ a plurality of layer substances in a vacuum system[[,]];

~~b)~~ coating the body by ~~means of~~ a reactive physical vapor deposition process~~, producing~~ with the plurality of layer substances in atomic dimensions to provide ~~which, as~~ a functional layer, the functional layer growing in a plurality of columnar structures substantially perpendicular ~~the body~~ a surface on the body~~, wherein~~;

~~a1)~~ transferring the body ~~which is to be coated, made from glass, glass-ceramic or another nonmetallic, crystalline material is transferred~~ into the vacuum system ~~in order to be coated~~ immediately after ~~it~~ the body has been produced[[,]]; and

~~b1)~~ interrupting the growth of ~~a~~ the functional layer ~~is interrupted~~ at least once by the deposition of a very thin interlayer~~ which~~, wherein the very thin interlayer is uninfluenced by the functional layer that has already grown[[,]] and has a different morphology than the functional layer[[,]] so that ~~the~~ a tendency of the plurality of columnar structures to widen out in the functional layer is interrupted.

27. (Currently amended) The process as claimed in claim ~~25 or~~ 26, wherein the body is coated by electron beam vaporization assisted by an ion beam.

25. (Currently amended) A process for coating a body with a protective layer, ~~in particular with a protective layer as claimed in claims 1 to 22,~~ comprising the steps of:

~~a)~~ providing the body and ~~the~~ a plurality of layer substances in a vacuum system[[,]];

~~b)~~ coating the body with the plurality of layer substances by ~~means of~~ a reactive physical vapor deposition process~~, producing layer substances~~ to produce the protective layer on the body in atomic dimensions ~~which~~ as a functional layer, the functional layer growing in a plurality of columnar structures substantially perpendicular to ~~the body~~ a surface ~~on~~ of the body~~, wherein~~; and

~~b1)~~ interrupting the growth of ~~a~~ the functional layer ~~is interrupted~~ at least once by the deposition of a very thin interlayer ~~which~~, wherein the very thin interlayer is uninfluenced by the functional layer that has already grown~~,~~ and has a different morphology than the functional layer[[,]] so that ~~the~~ a tendency of the plurality of columnar structures to widen out in the functional layer is interrupted.

28. (Currently amended) The process as claimed in claim 27, wherein the ~~energy of the ions of the assisting~~ ion beam has ions with an energy ~~is~~ between 1 and 2500 eV~~, preferably 1 - 800 eV, and particularly preferably between 20 and 450 eV~~.

29. (Currently amended) The process as claimed in claim ~~25 or~~ 26, wherein the body is coated by magnetron sputtering.

30. (Currently amended) The process as claimed in ~~one of claims 25 to 29, in particular for coating a body with a protective layer as claimed in claims 10 to 20~~ claim 26, wherein the plurality of layer substances are in solid form, as metallic components or as metal oxides.

31. (Currently amended) The process as claimed in claim 30, ~~wherein~~ further comprising feeding oxygen ~~is fed~~ into the vacuum system during the growth of the functional layer.

32. (Currently amended) The process as claimed in claim 30 ~~or 31~~, ~~wherein~~ further comprising feeding at least one additional gas~~, preferably nitrogen,~~ for optimizing ~~the~~ a material-removal rate and optimizing ~~the~~ a formation of atomic oxygen ~~is fed~~ into the vacuum system during the ~~production~~ growth of the functional layer ~~substances~~.

33. (Currently amended) The process as claimed in ~~one of~~ claim~~s~~ 30 ~~to 32~~, ~~wherein the coating of the body comprises a~~ further comprising thermally aftertreating~~ment, preferably~~ the functional layer in an oxygen atmosphere.

34. (Currently amended) The process as claimed in claim 33, wherein the thermal aftertreating~~ment~~ is carried out at temperatures of up to 800°C~~, preferably at temperatures of between 400°C and 700°C~~.

35. (Currently amended) The process as claimed in ~~one of~~ claim~~s~~ 25, ~~27 to 34, wherein the surface of the body to be coated is subjected to a~~ further comprising cleaning ~~operation~~ the body before ~~it is coated~~ coating the body.

36. (Currently amended) The process as claimed in claim 35, wherein the cleaning is carried out in a vacuum chamber by plasma treatment with ions, and wherein the ions have an ~~the~~ energy ~~of which~~ that is ~~preferably~~ in the range from 1 to 2500 eV~~, with preference from 50 to 1600 eV, and particularly preferably from 100 to 500 eV~~.

37. (Currently amended) The process as claimed in ~~one of~~ claim~~s~~ 25 ~~to 36~~, ~~wherein~~ further comprising activating the surface of the body ~~to be coated is activated~~ before ~~being coated~~ coating the body.

38. (Currently amended) The process as claimed in claim 37, wherein the ~~activation~~ activating is carried out in a vacuum chamber by ~~means of~~ a plasma treatment with ions, and wherein the ions have an ~~the~~ energy ~~of which~~ that is ~~preferably~~ in the range from 1 to 2500 eV~~, preferably from 50 to 1600 eV, and particularly preferably from 100 to 500 eV~~.

39. (Currently amended) The process as claimed in claim~~s~~ ~~36 and 38~~ 25, further comprising cleaning the body and activating the surface of the body before coating the body, wherein the cleaning and ~~activation~~ activating are carried out in a single process step.

40. (Currently amended) The process as claimed in ~~one of~~ claim~~s~~ 25 ~~to 39~~, further comprising heating ~~wherein~~ the body to be coated, at least before coating the body with the plurality of layer substances ~~are deposited~~, ~~is heated~~ to process temperatures of up to 800°C~~, and preferably of between 50°C and 550°C, particularly preferably between 100°C and 350°C~~.

41. (Currently amended) The process as claimed in ~~one of~~ claim~~s~~ 27 ~~to 40~~, wherein the coating operation further comprises ~~the~~ polishing ~~of the~~ a coated surface of the ~~applied~~ functional layer in at least one polishing step.

42. (Currently amended) An arrangement for coating a body made from glass, glass-ceramic or another nonmetallic, crystalline material~~, in particular for coating a glass-ceramic hotplate,~~ with a protective layer, ~~in particular with a protective layer as claimed in claims 1 to 17,~~ comprising:

a coating installation~~, which has~~ having at least one coating chamber ~~(4.n)~~, the coating chamber ~~(4.n)~~ being a vacuum chamber and the coating chamber having targets comprising ~~the layer~~ starting materials for the protective layer[[,]];

a plurality of excitation sources for generating the ~~layer~~ starting materials in atomic dimensions[[,]];

at least one process gas inlet valve ~~(15)~~ for feeding process gases into the coating chamber ~~(4.n),~~; and

a plurality of shutters ~~(7)~~ for feeding and discharging the ~~substrate (8)~~ body to be coated into and out of the coating chamber ~~(4.n)~~, wherein the coating installation is directly connected, via a substrate transfer station ~~(2.1)~~ and an input lock ~~(2.2)~~, to ~~the~~ a production installation ~~(1)~~ for the ~~substrate (8) which is to be coated~~ body.

43. (Currently amended) The arrangement as claimed in claim 42, wherein the plurality of excitation sources are vaporization sources.

44. (Currently amended) The arrangement as claimed in claim 42, wherein the plurality of excitation sources are magnetron sputtering sources~~ (13), in particular with pulsed magnetrons~~.

45. (Currently amended) The arrangement as claimed in claim 42 ~~or 44~~, wherein the plurality of excitation sources are double magnetrons.

46. (Currently amended) The arrangement as claimed in ~~one of~~ claim~~s~~ 42 ~~to 45~~, wherein the coating installation has a cleaning/activation chamber ~~(3)~~, the cleaning/activation chamber ~~(3)~~ being a vacuum chamber and having at least one cleaning/activation ion beam source ~~(11)~~ for cleaning and/or activating the ~~substrate (8)~~ body~~, and/or the coating installation including an apparatus which can be used to ignite a glow discharge, being arranged between the input lock (2.2) and the coating chamber (4.1) and being connected to them via shutters (7)~~.

47. (Currently amended) The arrangement as claimed in ~~one of~~ claim~~s~~ 42 ~~to 46~~, wherein the coating installation has ~~further~~ a plurality of coating chambers ~~(4.n), where n > 1, as a function of the number n of layer starting materials~~.

48. (Currently amended) The arrangement as claimed in ~~one of~~ claim~~s~~ 42 ~~to 47~~, wherein the coating installation has an aftertreatment chamber ~~(5)~~, the aftertreatment chamber ~~(5)~~ being a second vacuum chamber and including at least one oxygen feed valve ~~(16)~~ and heating elements ~~(9)~~ and being connected, via ~~a~~ one of the plurality of shutters ~~(7)~~, to the coating chamber ~~(4.1) or a further coating chamber (4.n)~~.

49. (Currently amended) The arrangement as claimed in ~~one of claims 42 to 47~~ claim 46, wherein the coating chamber ~~(4.n)~~ and the cleaning/activation chamber ~~(3)~~ have heating elements ~~(9)~~ for setting ~~the~~ a coating temperature.

50. (New) The protective layer as claimed in claim 1, wherein the functional layer is more than 80% crystalline.

51. (New) The protective layer as claimed in claim 1, wherein the functional layer has a first thickness in a range between 500 and 10,000 nm.

52. (New) The protective layer as claimed in claim 1, wherein the functional layer has a first thickness in a range between 1,500 and 5,000 nm.

53. (New) The protective layer as claimed in claim 3, wherein the at least one interlayer has a second thickness om a range between 1 to 5 nm.

54. (New) The protective layer as claimed in claim 1, wherein the functional layer is interrupted by a plurality of interlayers at intervals of 50 to 250 nm.

55. (New) The protective layer as claimed in claim 1, wherein the functional layer is interrupted by a plurality of interlayers, and wherein the functional layer includes columns which on average have a lateral dimension of less than 200 nm.

56. (New) The protective layer as claimed in claim 1, wherein the functional layer has a surface roughness having an R_a value of less than 30 nm.

57. (New) The protective layer as claimed in claim 1, wherein the functional layer has a surface roughness having an R_a value of less than 20 nm.

58. (New) The protective layer as claimed in claim 12, wherein the zirconium oxide comprises, as a stabilizing component, from 1 to 10 mol% of Y_2O_3.

59. (New) The protective layer as claimed in claim 12, wherein the zirconium oxide comprises, as a stabilizing component, from 1.0 to 7.5 mol% of Y_2O_3.

60. (New) The protective layer as claimed in claim 2, wherein the at least one interlayer is more than 80% amorphous.

61. (New) The protective layer as claimed in claim 21, wherein the mean lateral dimension of is less than 200 nm.

62. (New) The arrangement as claimed in claim 42, wherein the coating installation includes an apparatus that can be used to ignite a glow discharge, the apparatus being arranged between the input lock and the coating chamber and being connected to the input lock and the coating chamber via the plurality of shutters.

63. (New) The process as claimed in claim 27, wherein the ion beam has ions with an energy between 1 and 800 eV.

64. (New) The process as claimed in claim 27, wherein the ion beam has ions with an energy between 20 and 450 eV.

65. (New) The process as claimed in claim 33, wherein the thermal treating is carried out at temperatures of between 400°C and 700°C.